STRATEGY RESEARCH PROJECT

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THE UTILITY OF THE HEAVY MAIN BATTLE TANK IN MID TO HIGH INTENSITY CONFLICT IN THE YEAR 2000 AND BEYOND

BY

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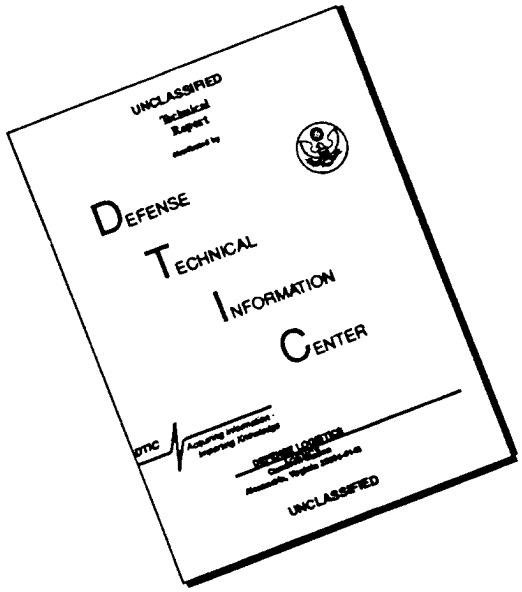

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ABSTRACT

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Evolving anti–tank technologies—seen by many military experts as making armor obsolete in future wars–will not displace tanks from the battlefield. The main battle tank will remain a crucial component of the ground force mix in foreseeable future conflicts. Some critics predict that such advancements in new technologies as precision–guided munitions, smart munitions, and other sophisticated weapon systems will indeed prove decisive on the next battlefield. However, experts in the armor community are convinced that the tank will again be the pivotal land weapon of choice in the years ahead. This essay explores the advancements in technology and the utility of heavy tanks as a decisive combat element in maneuver warfare in the year 2000 to 2010. It will specifically focus on the need to maintain the heavy main battle tank as part of the Army of the Twenty first Century for mid-to-high intensity conflict. This analysis is based on current material and my own speculations to draw conclusions about the future utility of the heavy tank.

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Introduction

Revolutions in military affairs are profoundly affecting the Army. As force structure and budgets get consistently smaller, the Army nonetheless retains the responsibility of remaining a trained and ready force capable of decisive victory any place around the globe. The Army must maintain this capability despite reductions in force structure, personnel, and budgets. But whatever the mission, the nation will expect us to succeed.

To remain a credible force capable of fighting and winning the next war, we must overcome three major challenges in an environment of diminishing resources, expanding missions and a global responsibility for regional peace and stability. First, we must assess our capability to fight two Major Regional Contingencies (MRCs), adopting the new strategic concept created by the end of the cold war. Second, we must explore the range of military operations defining the future operating environments in which we must employ forces. Finally, we must fully integrate our technological lead into a system of leap ahead military capabilities that a potential competitor will find impossible to replicate or counter.

Faced with the challenges of maintaining a force capable of decisive victory while reducing force structure, we come to the Big Question. Where will the reductions fall? From the heavy maneuver force, Army aviation, combat support force structure, combat service support elements, personnel end strengths, or the civilian sector? Of course, cuts will come from across the Army spectrum—but from some portions more than others. So we come to the problem of trade-offs to achieve a balance in force structure—a balance that will enable the Army to remain the best army into the next century.

Utility of Heavy Tanks in Mid-to-High Intensity Conflict in the year 2000 and beyond

In designing Force XXI, military planners for heavy forces looked at needs of the Army in future conflicts and postulated theories about the impact of emerging Revolutions in Military Affairs in shaping the Armor force of the future. As a result, heavy forces have taken the largest hit in force reductions. There are several reasons. The Army has become a power projection force because of changes in the threat. Tanks are expensive to sustain. They require a great deal of lift assets to move to a theater. Some strategists believe that the future of tanks in modern warfare is dim. They contend that long range precision munitions, smart bombs, strategic bombing capability, and precision over–the–horizon systems provide the decisive edge without the support of mechanized forces. Also, some envision that future battlefields will be completely high tech so large formations of armored forces will not be relevant. For these reasons, tank platforms will continue to suffer the most reductions in force structure.

This paper argues for the feasibility of the heavy tank as part of the combined arms team in mid-to-high intensity conflict for the year 2000 and beyond. My research is limited to the first decade of the new millennium, because much of the analysis dealing beyond the year 2010 is speculative, with too much uncertainty in conclusions for the world situation beyond 2010.

Evolution in technology has greatly enhanced our warfighting capability by expanding the lethality, tempo, and depth of operations on the battlefield. Weapon systems capable of detecting, engaging, and destroying enemy targets without the use of ground forces in direct contact with the enemy have significantly advanced warfighting methodologies. This ability to engage targets throughout the depth of the battlefield without the use of armored forces is a significant change in the warfighting paradigm. It has been attracting much attention politically, economically and militarily. Politically, it is significant because decision makers are looking for

means to cut government spending and justify a reduction in the defense budget. Economically, the money saved from force reductions can be used for other government programs, new initiatives, or for more precision systems or smart munitions. Militarily, the Chief of Staff and the CINCs can opt to cut expensive modernization efforts to save other programs of major concern. This was recently demonstrated with the decision to eliminate the Armored Gun System (AGS) in order to preserve funds and boost senior non-commissioned officer promotions to maintain personnel end strengths. Reducing the armor force to save funds for other priorities such as research and development or to the acquisition of more precision weapon systems makes sense. Nevertheless, no matter how technologically advanced we become, I believe that the heavy tank, with its current and future upgrades in technology, will be needed on the foreseeable battlefield. The unknown threats to national security, our super power status, and the uncertainty existing in the new world order, justifies maintaining a superior Army. It becomes increasingly apparent that in order to protect our interests and to maintain national security, we need an Army with the right mix of combat forces capable of performing a full range of military operations in any theater. A mechanized force augmented with tanks and its requisite supporting combat multipliers is credible, flexible, agile, lethal, and relevant for any mission. In this essay, I will examine emerging threats to National Security and the future battlefield framework showing how we will fight and dominate the battle space. I will project the role of tanks in countering threats, offering doctrinal implications for an army in transition. Taking into account the volatility, uncertainty, chaos and ambiguity of the current global environment, I will justify retaining heavy tanks as part of the combined arms team for the first decade of the next century.

Utility of Heavy Tanks in Mid-to-High Intensity Conflict in the year 2000 and beyond

Threats to National Security

The post–cold war period has compelled US political leaders to reassess our approach to national security, and re-think how we will determine the next threat to national security. Currently, threat analysts cannot accurately determine the next threat to US National Security Interests. As the global and military balance evolves at an accelerated pace, the prospect for future land warfare requires continuing examination.[1]

The fall of the Soviet Union has made the notion that our next conflict will be against the Soviet Bear obsolete. Current threats to national security are uncertain and ambiguous. We will more than likely be threatened by rogue states seeking hegemony and regional dominance; they are actively procuring weapons technology and weapons of mass destruction. Forecasting the next threat in order to field a force capable of countering the enemy's capability is the challenge facing military planners today. In "Forecasting the Threat", Dr. Alan Goldman outlines how threat analyses are conducted. He contends that to properly forecast the threat, analysts must answer the questions of who, when, where, how, what and why. Thus Dr. Goldman seeks to identify threats through answering these questions:

- Where will future conflicts involving US forces occur?
- When will the conflicts occur (in 10, 20, or 30 years)?
- How will they fight? (Enemy strategy, doctrine used, and force deployment).
- What will the combatants bring to the future battlefield?

Answers to these questions feed the complex system that our military planners use to plan, program, budget, and shape future forces.[2]

Utility of Heavy Tanks in Mid-to-High Intensity Conflict in the year 2000 and beyond

Army Intelligence programs produce a range of responses to answer the questions of who, where, when, how, and what. These responses are global security forecasts, battlefield development plans, and automated and hard copy data bases. Global security forecasts, offer a 30–year projection that answers the question of where, when, and between whom conflicts are likely to occur. Battlefield Development Plans offer 5 to 20–year forecasts that answers the question of how threat forces will organize and operate on the battlefield. The automated and hard–copy data bases yield stylized country force assessments and the Army force planning and data assessments. These responses provide the details necessary to project enemy order of battle, equipment, logistics and readiness for 2 to 25 years into the future.[3]

There are other schools of thought that have predicted no potential threats to national security in year 2000 and beyond; they project a world at peace. This projection is based on the expansion of democratic states, shared understanding of information technologies, and global economic interdependence. It contends that war is no longer a productive means of pursuing strategic objectives.[4] The Institute for National Strategic Studies has determined three potential types of conflict, but it offers no tangible information on defined threats. Potential for future conflicts resides among major powers, regional powers, and troubled states. Conflict between major powers is possible among the US, Japan, China, Russia, and major states of Western Europe. However, all are cooperating now and not preparing for conflict. This global passivity is unprecedented in history. This cooperation is a powerful force for peace as long as it lasts. If the powers were to consolidate around themselves political and economic blocs that were exclusive rather than open, tensions could emerge at the edges of the blocs, especially between

Russia and Western Europe. Of the three types of conflict, a clash among great powers would be the greatest threat to the US. But this is the least likely scenario.

Conflict among regional powers will mainly involve troubled or transitional states seeking dominance or regional hegemony. Major powers will seldom be involved in this type of conflict unless threats to vital interests are involved. The proliferation of weapons if mass destruction and the proliferation of advancements in technology could increase the propensity of aggressive states to threaten their neighbors and thereby increase the risks for the US. The third conflict involving troubled states always starts out as conflict within a country's borders. This type of conflict is the most prevalent, but it poses the least threat to US interests. Great powers are often willing to provide humanitarian and political assistance to troubled states. But they are reluctant to intervene militarily, unless a particular crisis threatens to escalate or engulf other states, create a human disaster, or otherwise affect great powers. These views on emerging threats and attempts to identify potential threats have allowed military planners to develop doctrine that will enable Force XXI decision-makers to shape force structure and training strategies for meeting future threats on the battlefield.[5]

The Training and Doctrine Command (TRADOC) has identified categories of a future threat spectrum and assessed these threats in TRADOC Pam 525-5. This is the seminal document that provides the conceptual foundation that will enable the leadership of Force XXI to effectively conduct war and operations other than war. The threat categories identified in this pamphlet are: Phenomenological Threats, Nonnation Threat Forces, Internal Security Forces, Infantry Based Armies, Armor-Mechanized Based Armies, Complex Adaptive Armies, Comparisons, and Proliferation and Modernization. [6] All categories take on their own personality, design and

description. The threat that most concerns armor strategists is the large concentration of Armor–Mechanized–Based and large Infantry Armies. These are the combat forces that US ground combat forces will likely encounter on the next battlefield. (See Figure 1).

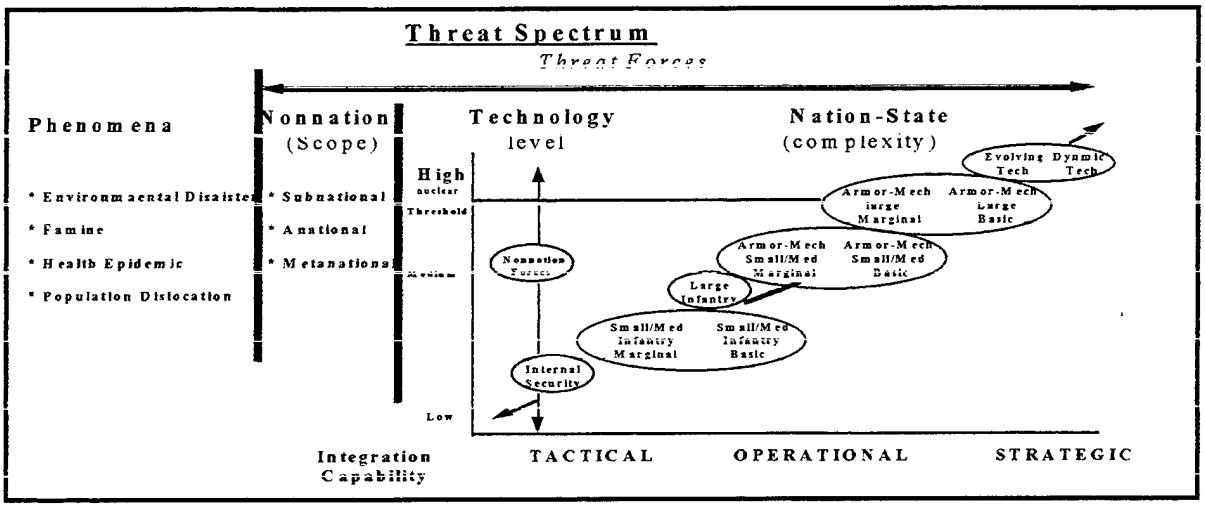

Figure 1: Threat Spectrum; (SOURCE: TRADOC PAM 525-5)

In this illustration, one can clearly see that from mid–to–high intensity conflict, we can expect to encounter large armor, mechanized and infantry formations. At the medium to high levels of conflict, analysts predict significant advancements in weapons technology existing in these forces. In light of the evidence provided, I support this analysis, as it provides the necessary justification for maintaining heavy tanks in the US Army force structure well into the next century.

As a result of Desert Storm, we can expect potential threats and aggressor states to continue improvements in their technologies to counter sophisticated systems in the US Army. But we should not expect as rapid an advance in technology in potential threat countries as we see in the US. However, we should mention the technological edge for several reasons ranging from regional instability to lack of political leadership and economic power. Also, planners at

TRADOC specify that nations with 40 percent or more of their forces mounted in armored vehicles will not launch into a new modernization program. These countries seem to modernize selected systems to match the best system deployed by their neighbors. Second, they display hierarchical C3I structures that are not as technologically advanced, or as complex as ours. Also, their armies are not adaptive, particularly in harnessing information technology. These countries tend to compensate for technological inferiority with numbers and weight of metal.[7]

Forecasting counter–threat military capabilities involves drawing from forecasts of future wars and doctrine, then applying a different set of methods and techniques. Within this level of analysis, a subhierachy calls for analyzing and stating a country's national interest, goals, and objectives. After identifying the national goals and the external threat, a mission statement for a future force is prepared. Based on the mission statement, an unconstrained force can be postulated. These efforts provide military planners with the most current information from around the world that impacts national security.[8]

Though we have demonstrated the technological capability to identify, counter, and defeat potential threats to national security several times during this century, such demonstrations are not in themselves a reliable deterrent. We can expect rogue nations to show on the radar screen, prompting a US response to deter aggression, defend helpless democratic nations, or regain control and re–establish sovereignty in countries incapable of defending themselves.

To better illustrate why heavy tanks will remain a vital force in the Army of the 21st century, we need to look at the future battlefield to see how heavy armor is necessary to ensure success in the next conflict.

The Future Battlefield

The vision of the strategic landscape of the future battlefield reveals a varied and multifaceted environment with chances of surprise across the operational spectrum because our adversaries will potentially posses technology equal to or superior to our own. Because of current global ambiguity, planners can only speculate about the future threat. The linear and tight structure of the Soviet stylized tactics that enabled experts to make precise and quantitative analyses while accurately predicting his maneuver tactics is history. Revised thinking of the battlefield framework offers a significant departure from the Airland Battlefield framework.

The doctrine established for 21st century warfare gives commanders the latitude to choose a framework for certain METT-T conditions. The revisions in emerging doctrine reflect these changes and introduce five new concepts in the conduct of operations: Battle command, battle space, depth and simultaneous attack, early entry, and combat service support. This analysis will focus on the areas of battle space, and depth and simultaneous attack. These two areas directly relate to the uses of combined arms and provide support for the need for tanks in future mid–to–high intensity conflicts. Based on the concepts of future warfighting doctrine and visions of the twenty first century battlefield, Figure 2 graphically portrays the future strategic battlefield. A wide range of complex command and control systems, and combat systems linked by digitization in the battlespace are concentrated on the enemy to set conditions for decisive victory.

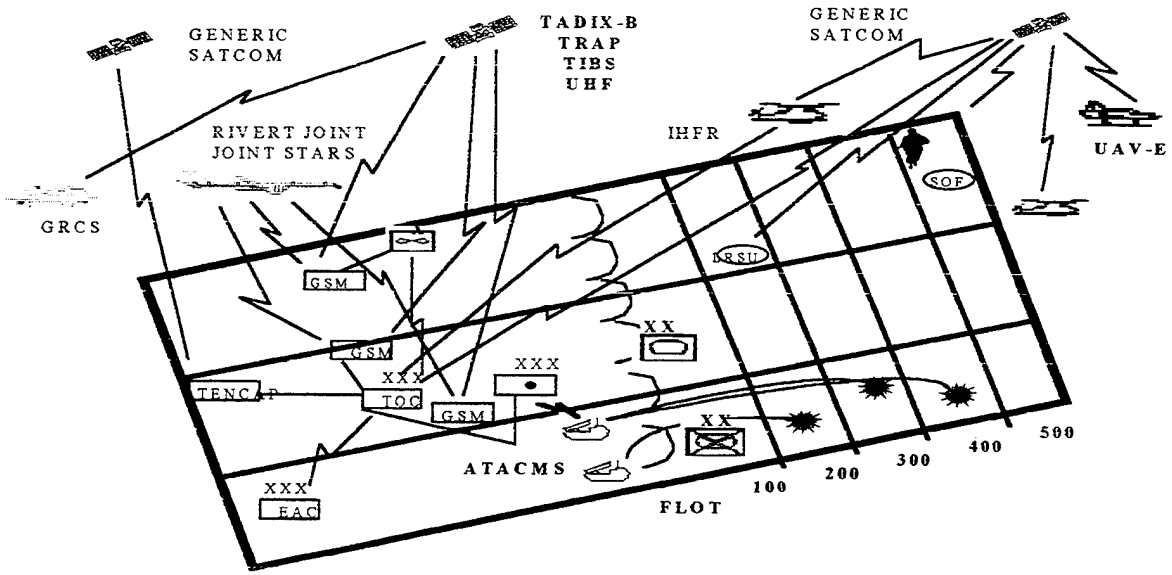

Figure 2: The Future Battlefield
(SOURCE: USAWC: IMPLEMENTING NATIONAL SECURITY STRATEGY, SELECTED READINGS)

This illustration provides some insights into the complexity of the next battlefield and allows us to visualize the concept of depth and simultaneous attack. It raises two issues about warfighting at the operational and tactical levels—how an over-reliance on digitization and a subsequent disruption of the digital communications link can adversely affect combat operations, and how the synchronized application of combined arms maneuver forces and provide the decisive factor in achieving endstate success.

The concept of depth and simultaneous attack at the operational and tactical levels is clearly portrayed in this picture. We can see the criticality of space-based systems for positive command and control, enabling intelligence gatherers to paint the picture and provide critical data for commanders. In this scenario, it is evident that we will rely heavily on space based systems for transmitting vital combat information, which then enables us to attack decisive points and centers of gravity destroying targets of opportunity with long range over–the–horizon munitions. All of this sets conditions for battlefield success. I believe an over-reliance on

space-based communications and digitization is risky in the next war, especially if our adversary knows our capabilities and has developed the technology to counter our systems.

To further examine the battlefield of the future, let's consider what battlespace means. It is the battlefield construct of close, deep and rear operations. All of the elements are related in time, space, and distance to extend a commander's focus beyond the immediate confines of the defined area of operations. Battlespace includes the breadth, depth, and height in which a commander positions and moves assets over time. It shows us that battle is not always linear or contiguous and that concentrating effects, is not necessarily always the aim of mass. Battle-space provides a framework for commanders to view potential missions, freeing their thoughts from physical restrictions and allowing them to consider mission, enemy, terrain, troops, and time available, uninhibited by externally imposed graphics. Bottom line: battlespace gives a commander an organized way of thinking about warfighting.[9]

At the operational levels, commanders are dependent on continuous uninterrupted communications. Specifically, space systems provide information to support planning, a means for disseminating information, tracking and managing assets, and controlling forces during war.[10] A complete dependence on space-based communications makes a commander vulnerable. If a form of electronic warfare successfully jams our communication system, many support systems would be affected. Enhanced situational awareness systems that provide the ability to visualize the battlespace while blinding the enemy or shaping an opposing commander's vision will be interrupted. Most significant, the commander's ability to engage enemy forces at greater distances with assured accuracy through the use of precision systems and laser guided over-the horizon systems may be denied.[11] Loss of space-based communications by

means of electronic warfare will significantly degrade our capability to sustain agility and synchronize operations on the battlefield. Because of this, we could culminate earlier than expected or cause us to completely revise plans to achieve endstate, thus losing the opportunity to bring a swift end to a conflict.

At the tactical level, space capabilities enhance the synchronization of close operations while Army forces are in contact with the enemy. The deep look is critical to disrupting the enemy's tempo and the effectiveness of his follow-on forces. Space systems provide the linkage for gathering information on weather, targeting, terrain, and ingress or egress information needed to support combat operations. The inability to see the battlefield at the tactical level due to loss of digital links places forces at risk and increases the chance of fighting a war of attrition. This type of situation can be avoided with the right mix of combined arms forces on the ground equipped with alternate means of conventional FM communications. Units can maintain the momentum and continue fighting until the digital communications are restored. We are certain to win the ground war with mobile armored forces closing rapidly on enemy forces with a high degree of lethality and a reasonable chance of survival. Tanks, fighting as part of a combined arms team, gives the proper mix to accomplish the mission.

Thus far, we looked at the complexity of the battlefield in the context of digitization and its vulnerabilities to electronic warfare at the operational and tactical levels of warfare. Without effective digital communications links, our ability to effectively execute deep and simultaneous attacks in the battle space will be significantly affected; and it could change the outcome of the campaign. In the event of the loss of the digitization link, heavy forces equipped with back-up

FM systems in addition to the digital capability offer a reasonable chance of mission success and provide interim communications in the event of failure of the digital system.

The next section examines the battlefield from the close fight perspective and provides further evidence that tanks are the dominant force, capable of providing the decisive edge for combat operations to the year 2010 and beyond.

Dominant Maneuver

To win future wars decisively, we must continue to dominate the battlespace as the US and its coalition forces did in Desert Storm. To do this, we must strive to maintain our ability to dominate maneuver on the battlefield by controlling the depth, breadth, and height of the battlespace by positioning forces to attain a decided advantage. In the past, movement of forces in the battlespace to create a tactical and operational advantage has always been a critical point in the art of war. Dominant maneuver builds on existing service doctrine for maneuver warfare by expanding the application of operational and tactical concepts to the strategic level. This doctrine provides coherence to operations involving air, land, naval, and space forces. By dominating maneuver space, we can capitalize on the increasing complexity and nonlinearity of the battlespace by seeking to completely disrupt the enemy's cohesion, collapsing his warfighting ability by attacking his decisive points and vulnerabilities.[12]

As part of the Joint Team, the Army role in dominating the battle space is critical. The right kinds and numbers of forces at the right place in time and space will enable friendly forces to rapidly defeat the enemy. To dominate maneuver on the battlefield, we must take a closer look at the maneuver space within the battlespace. Figure 3 gives an overview of the battlefield organization to show how units organize for future operations within an area of operation. In this illustration, a corps commander will be assigned an area based on the joint forces

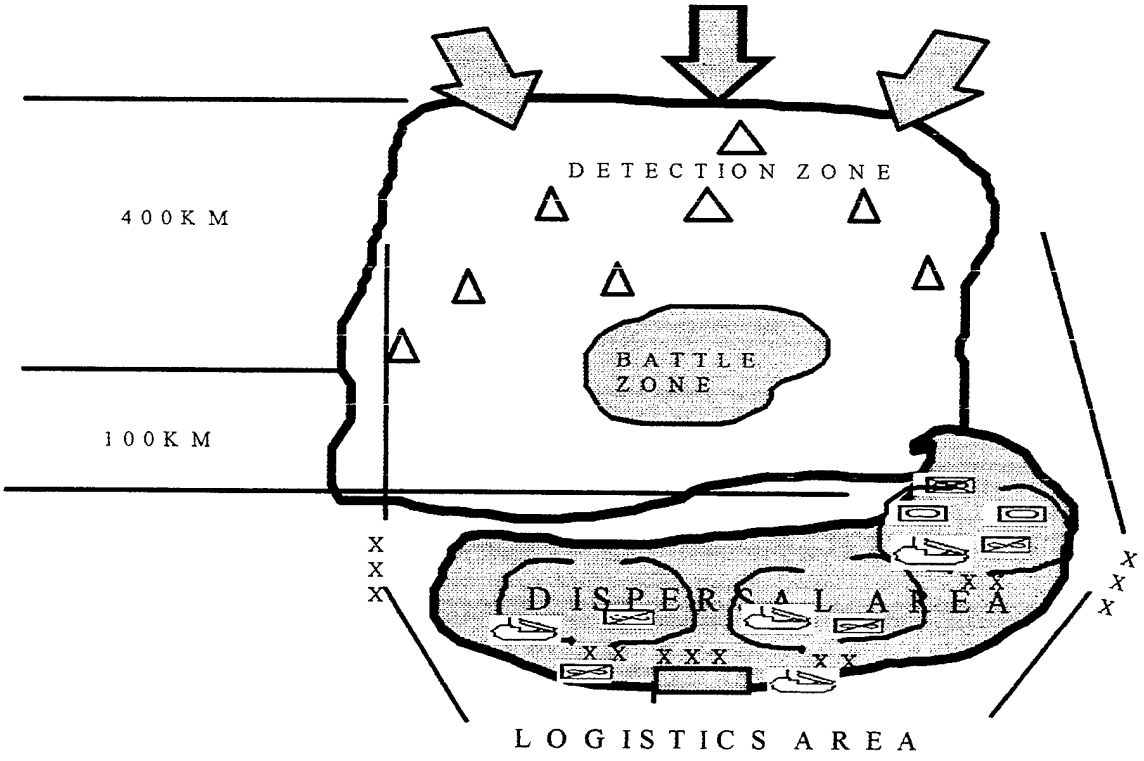

Figure 3: Battlefield Depth Array
(SOURCE: MILITARY REVIEW, FEBRUARY 1991)

commander's intent. Divisions will not initially have assigned sectors along the corps front. Rather, they will operate more as if they had received a reserve mission. This flexibility allows the corps commander to determine how he will defeat enemy forces through out the depth of the battlefield in time. Plans are finalized, orders issued, operations rehearsed, and final preparation for the fight is accomplished.

At the organizational and tactical levels, commanders will be assigned areas of operation with divisions, brigades, and battalions moving into dispersal areas. Units will spread out to avoid detection and engagement by enemy long-range fires while preparing for battle. At the appropriate time, forces will be committed; then they maneuver to engage and defeat enemy forces in the battle zone. Conditions for success in the battle zone are established through four

stages: Detection preparation, conditions for decisive operations, decisive operations, and reconstitution. Detection preparation is primarily intelligence-gathering, the essential element to any successful battle plan (Fig. 4).

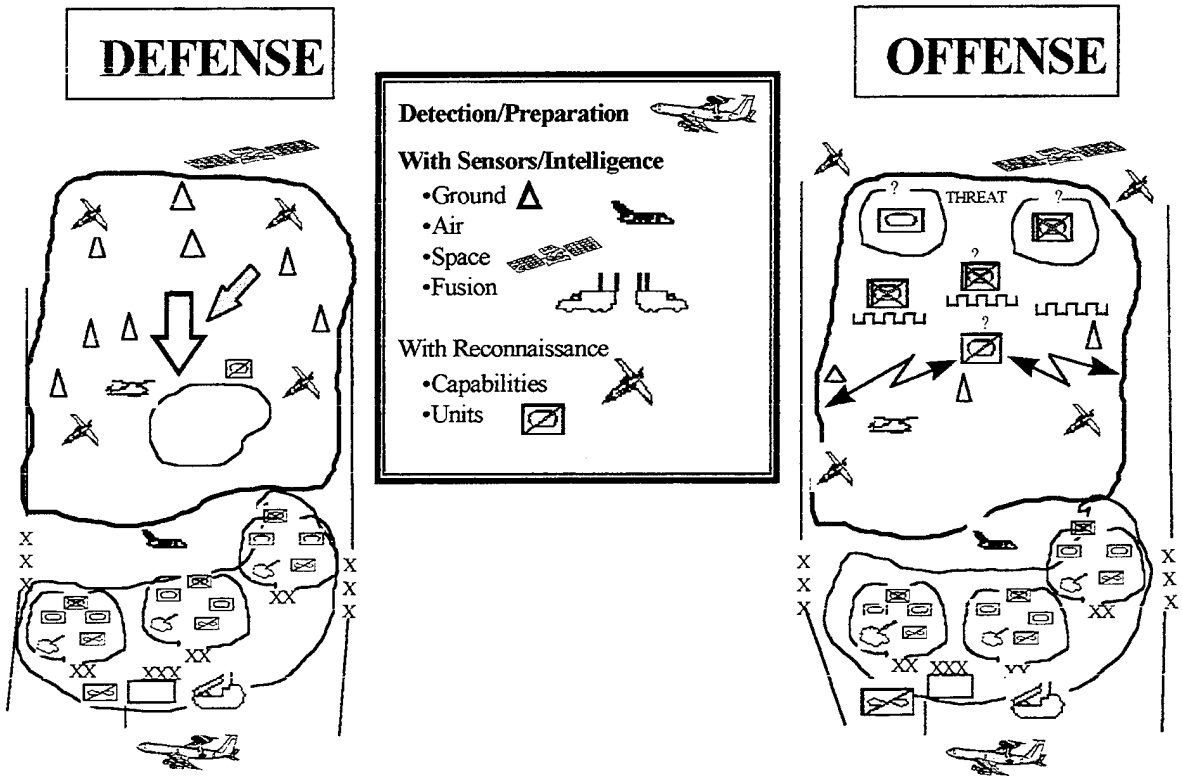

Figure 4: Battlefield preparation-Setting Conditions

(SOURCE: MILITARY REVIEW, FEBRUARY 1991)

Figure 5 illustrates how senior commanders set conditions for decisive operations through information age warfare–combining digitization, space-based communication systems, long range precision munitions, deception, and joint forces to separate enemy forces in space and time. Courses of action have been chosen, and through the skillful application of combat multipliers, commanders are setting conditions for success. Now the commander can seize the initiative throughout the depth of the battle space until he is ready for the decisive operation.

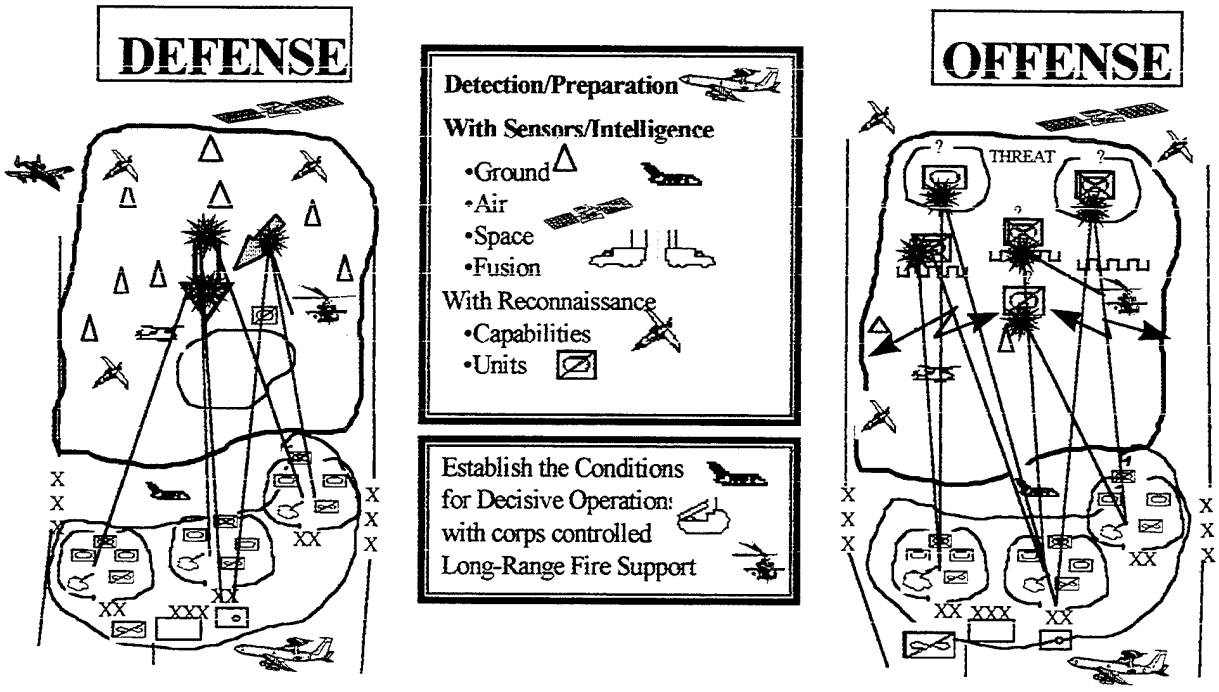

Figure 5: Establish Conditions for Decisive Operations

(SOURCE: MILITARY REVIEW, FEBRUARY 1991)

Decisive Operations

As Major General Silvasy states in his article "Airland Battle Future, The Tactical Battlefield", this is where our old ideas of specific terrain objectives and limited missions will have to give way to operating more in light of the commander's intent and being able to take advantage of situations that arise on the battlefield. This means giving subordinate commanders more authority to operate within the larger picture and to take more calculated risks. Tactical units, supported by massed air, artillery and attack helicopters will maneuver to gain positional advantage and complete the destruction of the enemy force. In the offense, this maneuver might be a breakthrough after finding or creating a gap. In the defense, it is perhaps a spoiling attack

against a greatly weakened and disorganized enemy. Tactical maneuver will differ significantly in both distance and speed from the way battalions and brigades conduct offensive operations.

The division is responsible for conducting the close maneuver battle. The scheme of maneuver and tasks to subordinate units are designed to place the enemy force at a major disadvantage. If total destruction is necessary, this maneuver will bring the close battle to a quick and successful finish. Brigade formations will bring together a team accustomed to working together and able to organize quickly for the mission at hand and to change as the situation dictates. Battalions have the simple task of destroying the enemy in close combat. Figure 6 illustrates how combined arms maneuver forces, synchronized in time and space, are decisive forces on any battlefield. [13] It reinforces the need for US forces to fight with joint and combined

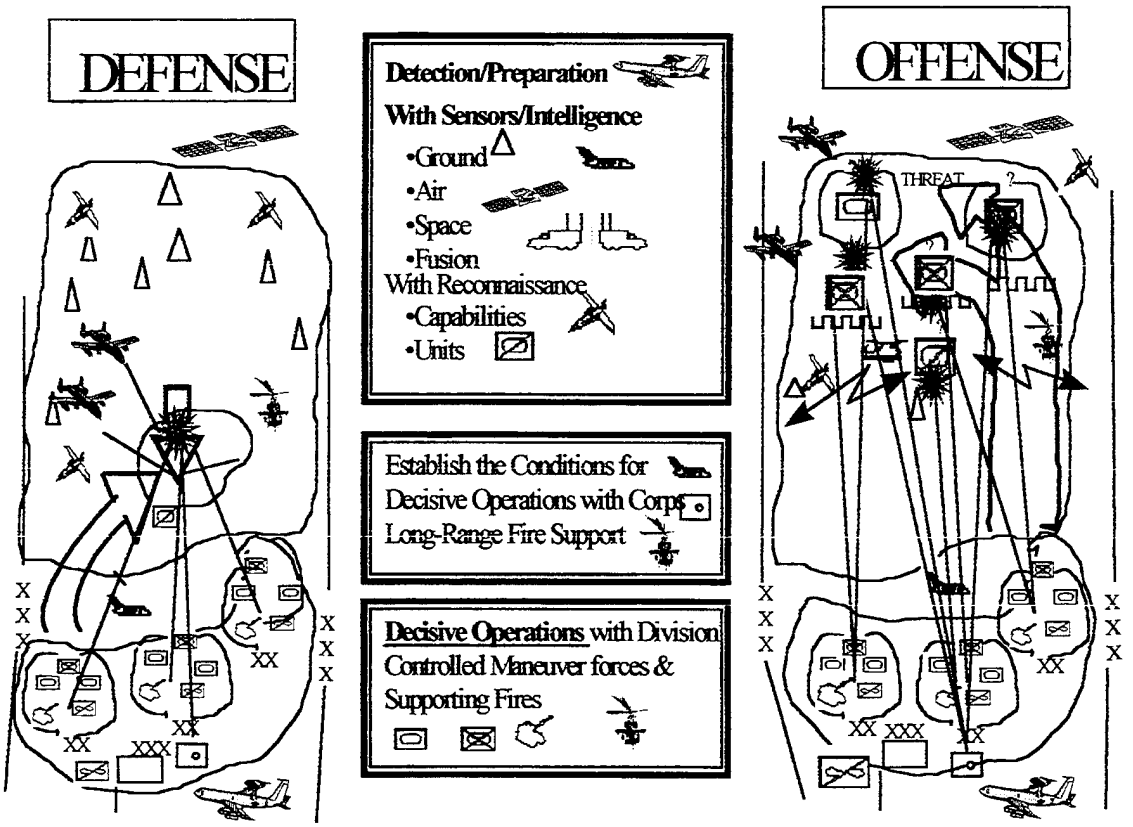

Figure 6: Decisive Operations: (SOURCE: MILITARY REVIEW, FEBRUARY 1991)

arms to achieve decisive victory. It further reinforces the point that the heavy tank remains a vital part of the force structure.

Airland Battle has evolved significantly and has changed the role of ground maneuver forces. Technology has driven this change in our how-to-fight doctrine, and it makes sense. In light of the evidence provided, I strongly believe that the heavy tank will remain part of the combined arms joint team out to year 2010 and beyond. It is a vital component of decisive action on the future battlefield. It takes special weapons to destroy tanks and weapon systems cannot be positioned everywhere armored formations may potentially strike. Furthermore, existing countermeasures still cannot overcome a tank's inherent advantages nor can any other combination of forces better perform decisive conventional tasks.

Tank Projections

To win the fight on the future battlefield in mid-to-high intensity conflict, how many tanks, and what type do we need? Do we see the need for a heavy or light platform? Figure 7 illustrates the potential-tank fielding plan. It fields only heavy tank systems. This plan is changing constantly and has probably been modified since the projection we published because of fiscal constraints. However, this is the latest projection for tanks from TRADOC Systems Managers, (TSM Abrams) at Fort Knox. This projection shows units equipped with tanks, by year, from 1996 to year 2015. [It is assumed that the current number of tanks (per battalion) will remain as reflected in the current tables of organizations and equipment for these units.]

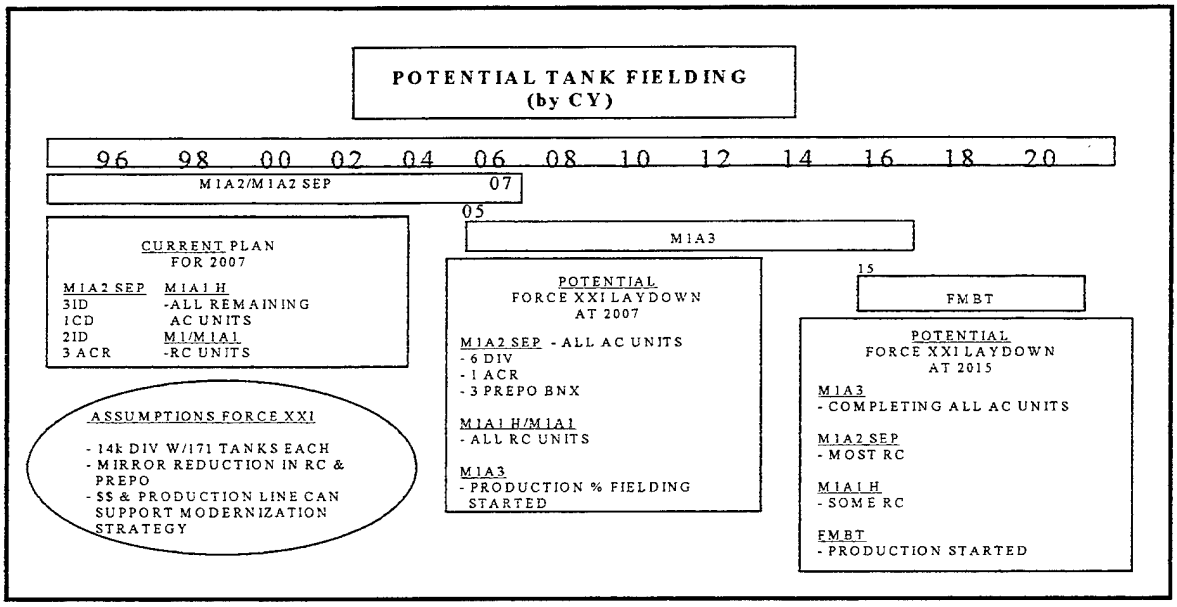

Figure 7: Tank Projections

(SOURCE: TSM ABRAMS, ARMOR CENTER, FORT KNOX)

Referencing threat projections for the next decade, and the future environment for conflict, and a capabilities based force that will be packaged for every contingency, research supports the force structure reflected on this chart. The M1A1 and the M1A2 tanks in their present construct will be modified to meet the needs of the army in this era of high technology. The numbers of tanks in a battalion will probably be reduced to become part of a force package to meet regional threats as force structure and doctrine changes to support a capabilities based army.

If deeper cuts in defense spending continue, we may potentially see further reductions in tank force structure, because of sustainability and the lift assets required to move tanks to a theater of war. Currently, in areas where potential threats to national security exist, or will emerge, we have enough tank platforms prepositioned on ships to equip an armor brigade. This is not a problem. Problems begin in the event of conflict and the potential of that conflict escalating to a point where additional combat forces are required. A shortage of lift assets will

delay the movement of stateside units equipped with M1 tanks into the theater of war, therefore increasing the chances of a protracted war. This poses the question to decision-makers: should we keep the heavy tank in its present configuration with its upgrades, or do we design and build a new tank?

Army leaders must decide whether they want America's next tank to be a new version of the M1 Abrams or a radically different weapon system designed from ground up. Currently, a lack of funds prohibits the Army from advancing with the block 3 M1 tank and funding the design and acquisition of a new tank. There is no light at the end of the tunnel and the budget imbalance and fiscal constraints will continue into the unforeseeable future. As long as these conditions exist, a new tank platform will not emerge in the next 10 to 15 years.

As we enter into the 21st century, the Army is safe with the M1A1, M1A2 and its upgrades in digital equipment. Both tanks are capable of defeating any known armor in the world today while providing adequate protection for the crew; they will remain the dominant tank beyond year 2010. The block 3 M1 with its increased range and firepower is great, but all future wars will not be fought on battlefields where line-of-sight is 3000 meters and beyond. Therefore, the need for the M1A3 tank is unjustified and the potential for fielding in the near future is unlikely.

Senior Army leaders and military planners understand that beyond year 2010 the M1 series tank will be obsolete, over 30 years old, and difficult to maintain. Also, warfare will have evolved to new levels where robotics, emitters, sensors, mini-projectiles, and non-lethal warfare have become dominant. I see this as the major driver for a new tank.

The future tank must be modular in design, capable of moving quickly, and equipped with a sensor system that would sweep the horizon and see beyond hills. Its weapon system would use

lasers or some kind of hyper-velocity kinetic energy ... It would have stealth technologies and countermeasures in case it was detected. Most of all it would be extremely survivable. Tank systems of the future must be more compact, lighter, and offer greater fuel efficiency. A tank such as this will enable the armor force to remain a viable combat force far into the next century.[14]

Doctrinal Implications

As the army evolves into the next century, changes in technology, force structure, personnel, and budgets will continue. This drives changes in doctrine. It is important to realize that Airland Battle Future represents an evolution, not a revolution in our military thinking. This is especially true at the tactical levels where units, when committed, will be expected to fight and win using tactics, techniques and procedures consistent with current doctrine. The uncertainty existing today poses a challenge to doctrine writers, especially when threats cannot be identified and force structure cannot be decided. Our army of the next century must continue to remain flexible with the capability to respond globally, rapidly and decisively in support of national security. Therefore, the right doctrine and combat equipment are vital.

Conclusion

The future of the heavy tank in mid-to-high intensity conflict in year 2000 to 2010 is safe. Its security is assured because the tank force is a vital part of the combined arms team, and so far nothing has replaced the tank. This is because no other weapon system combines the mobility, fire power, ballistic protection, nuclear, biological and chemical protection. Nor can any other system conduct breakthrough attacks, advance and pursuit, reconnaissance, counterattacks and hold ground. Further, tanks can operate in all weather conditions, under fire, and around-the-clock for sustained periods of time. Therefore, armored formations have staying power and

assault power no other system can match giving us the decisive edge. Furthermore, to support the National Military Strategy, the Army must accomplish the following tasks:

- Providing forces for forward presence.
- Maintaining combat ready forces for power projection.
- Maintaining forces for reinforcement.
- Participating in integrated operations and providing support to civil authority.
- Contributing to regional stability through support to allies.

To accomplish these missions, the army must project its power and influence from the continental US or other staging areas to anywhere in the world. In the face of uncertain threats, the Army must deploy with forces capable of deterrence and decisive victory if armed conflict erupts. The heavy tank provides that decisive edge.

Endnotes

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[2]Ibid. 7.

[3]Ibid. 7-9.

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(N) [5]Department of the Army, TRADOC Pamphlet 525-5, Force XXI Operations, (Fort Monroe: TRADOC, 1 August 1994): 2-3.

[6]Ibid. 3-1

[7]Ibid. 3-1-3-2.

(N) [8]US Army War College, Selected Readings,, Use of Space Systems, (Implementing National Military Strategy, 13 November 1995-12 January 1996): 19-26.

(N) [9]General Frederick M. Franks, "Full Dimensional Operations, A Doctrine for an Era of Change", Military Review, (December 1993): 8-9, 36.

[10]US Army War College, Selected Readings, Use of Space Systems. 19-27.

[11]TRADOC Pamphlet 525-5: 3-1.

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